

<110> PROFOS AG  
<120> Verfahren zum Nachweis von Endotoxin  
<130> PRO-013 PCT  
<140> unknown  
<141> 2004-12-20  
<150> DE 103 60 844.3  
<151> 2003-12-20  
<160> 15  
<170> PatentIn version 3.1

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aatacatatc aacacgtt 78

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aatacatatc aacacgtt 78

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aatacatatc aacacgtt 78

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Met Ala Ser Trp Ser His Pro Gln Phe Glu Lys Gly Ala Ser Asn Asn  
1 5 10 15

Thr Tyr Gln

<210> 6  
<211> 19  
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<400> 6

Met Ala Cys Trp Ser His Pro Gln Phe Glu Lys Gly Ala Ser Asn Asn  
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Thr Tyr Gln

<210> 7  
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Met Ala Ser Trp Ser His Pro Gln Phe Glu Lys Gly Ala Cys Asn Asn  
1 5 10 15

Thr Tyr Gln

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&lt;220&gt;

&lt;223&gt; T4p12 with strep tag

&lt;400&gt; 8

Met	Ala	Ser	Trp	Ser	His	Pro	Gln	Phe	Glu	Lys	Gly	Ala	Ser	Asn	Asn
1					5				10					15	
Thr	Tyr	Gln	His	Val	Ser	Asn	Glu	Ser	Arg	Tyr	Val	Lys	Phe	Asp	Pro
				20				25					30		
Thr	Asp	Thr	Asn	Phe	Pro	Pro	Glu	Ile	Thr	Asp	Val	Gln	Ala	Ala	Ile
					35			40				45			
Ala	Ala	Ile	Ser	Pro	Ala	Gly	Val	Asn	Gly	Val	Pro	Asp	Ala	Ser	Ser
					50			55			60				
Thr	Thr	Lys	Gly	Ile	Leu	Phe	Leu	Ala	Thr	Glu	Gln	Glu	Val	Ile	Asp
					65			70			75			80	
Gly	Thr	Asn	Asn	Thr	Lys	Ala	Val	Thr	Pro	Ala	Thr	Leu	Ala	Thr	Arg
					85			90			95				
Leu	Ser	Tyr	Pro	Asn	Ala	Thr	Glu	Ala	Val	Tyr	Gly	Leu	Thr	Arg	Tyr
					100			105			110				
Ser	Thr	Asp	Asp	Glu	Ala	Ile	Ala	Gly	Val	Asn	Asn	Glu	Ser	Ser	Ile
					115			120			125				
Thr	Pro	Ala	Lys	Phe	Thr	Val	Ala	Leu	Asn	Asn	Val	Phe	Glu	Thr	Arg
					130			135			140				
Val	Ser	Thr	Glu	Ser	Ser	Asn	Gly	Val	Ile	Lys	Ile	Ser	Ser	Leu	Pro
					145			150			155			160	
Gln	Ala	Leu	Ala	Gly	Ala	Asp	Asp	Thr	Thr	Ala	Met	Thr	Pro	Leu	Lys
					165			170			175				
Thr	Gln	Gln	Leu	Ala	Val	Lys	Leu	Ile	Ala	Gln	Ile	Ala	Pro	Ser	Lys
					180			185			190				
Asn	Ala	Ala	Thr	Glu	Ser	Glu	Gln	Gly	Val	Ile	Gln	Leu	Ala	Thr	Val
					195			200			205				
Ala	Gln	Ala	Arg	Gln	Gly	Thr	Leu	Arg	Glu	Gly	Tyr	Ala	Ile	Ser	Pro
					210			215			220				
Tyr	Thr	Phe	Met	Asn	Ser	Thr	Ala	Thr	Glu	Glu	Tyr	Lys	Gly	Val	Ile
					225			230			235			240	
Lys	Leu	Gly	Thr	Gln	Ser	Glu	Val	Asn	Ser	Asn	Asn	Ala	Ser	Val	Ala
					245			250			255				
Val	Thr	Gly	Ala	Thr	Leu	Asn	Gly	Arg	Gly	Ser	Thr	Thr	Ser	Met	Arg
					260			265			270				
Gly	Val	Val	Lys	Leu	Thr	Thr	Ala	Gly	Ser	Gln	Ser	Gly	Gly	Asp	
					275			280			285				
Ala	Ser	Ser	Ala	Leu	Ala	Trp	Asn	Ala	Asp	Val	Ile	His	Gln	Arg	Gly
					290			295			300				
Gly	Gln	Thr	Ile	Asn	Gly	Thr	Leu	Arg	Ile	Asn	Asn	Thr	Leu	Thr	Ile
					305			310			315			320	

Ala Ser Gly Gly Ala Asn Ile Thr Gly Thr Val Asn Met Thr Gly Gly  
 325 330 335  
 Tyr Ile Gln Gly Lys Arg Val Val Thr Gln Asn Glu Ile Asp Arg Thr  
 340 345 350  
 Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp Ser Leu Pro Ser  
 355 360 365  
 Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser Ala Ser Asp Cys  
 370 375 380  
 Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly Gly Ser Ser Ser  
 385 390 395 400  
 Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ser Gly  
 405 410 415  
 Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly Asn Asp Gln Phe  
 420 425 430  
 Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly Tyr Val Gly Glu  
 435 440 445  
 Val Gln Lys Gln Gln Met Ser Tyr His Lys His Ala Gly Gly Phe Gly  
 450 455 460  
 Glu Tyr Asp Asp Ser Gly Ala Phe Gly Asn Thr Arg Arg Ser Asn Phe  
 465 470 475 480  
 Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg Ser Tyr Phe Thr  
 485 490 495  
 Asn Asp Gly Tyr Glu Ile Asp Pro Ala Ser Gln Arg Asn Ser Arg Tyr  
 500 505 510  
 Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr Arg Pro Trp Asn  
 515 520 525  
 Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu  
 530 535

<210> 9  
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 <212> PRT  
 <213> protein p12 of T2 phage

<400> 9

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Arg Tyr Val  
 1 5 10 15  
 Lys Phe Asp Pro Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val  
 20 25 30  
 Gln Ala Ala Ile Ala Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro  
 35 40 45  
 Asp Ala Ser Ser Thr Thr Lys Gly Ile Leu Phe Leu Ala Thr Glu Gln  
 50 55 60  
 Glu Val Ile Asp Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr

65

70

75

80

Leu Ala Thr Arg Leu Ser Tyr Pro Asn Ala Thr Glu Ala Val Tyr Gly  
 85 90 95

Leu Thr Arg Tyr Ser Thr Asp Asp Glu Ala Ile Ala Gly Val Asn Asn  
 100 105 110

Glu Ser Ser Ile Thr Pro Ala Lys Phe Thr Val Ala Leu Asn Asn Val  
 115 120 125

Phe Glu Thr Arg Val Ser Thr Glu Ser Ser Asn Gly Val Ile Lys Ile  
 130 135 140

Ser Ser Leu Pro Gln Ala Leu Ala Gly Ala Asp Asp Thr Thr Ala Met  
 145 150 155 160

Thr Pro Leu Lys Thr Gln Gln Leu Ala Val Lys Leu Ile Ala Gln Ile  
 165 170 175

Ala Pro Ser Lys Asn Ala Ala Thr Glu Ser Glu Gln Gly Val Ile Gln  
 180 185 190

Leu Ala Thr Val Ala Gln Ala Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Thr Ala Thr Glu Glu Tyr  
 210 215 220

Lys Gly Val Ile Lys Leu Gly Thr Gln Ser Glu Val Asn Ser Asn Asn  
 225 230 235 240

Ala Ser Val Ala Val Thr Gly Ala Thr Leu Asn Gly Arg Gly Ser Thr  
 245 250 255

Thr Ser Met Arg Gly Val Val Lys Leu Thr Thr Thr Ala Gly Ser Gln  
 260 265 270

Ser Gly Gly Asp Ala Ser Ser Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285

His Gln Arg Gly Gly Gln Thr Ile Asn Gly Thr Leu Arg Ile Asn Asn  
 290 295 300

Thr Leu Thr Ile Ala Ser Gly Gly Ala Asn Ile Thr Gly Thr Val Asn  
 305 310 315 320

Met Thr Gly Gly Tyr Ile Gln Gly Lys Arg Val Val Thr Gln Asn Glu  
 325 330 335

Ile Asp Arg Thr Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp  
 340 345 350

Ser Leu Pro Ser Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser  
 355 360 365

Ala Ser Asp Cys Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly  
 370 375 380

Gly Thr Ser Ser Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val  
 385 390 395 400

Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly  
 405 410 415

Asn	Asp	Gln	Phe	Gly	Lys	Pro	Arg	Leu	Gly	Val	Gly	Cys	Thr	Gly	Gly
420								425						430	
Tyr	Val	Gly	Glu	Val	Gln	Lys	Gln	Gln	Met	Ser	Tyr	His	Lys	His	Ala
435								440					445		
Gly	Gly	Phe	Gly	Glu	Tyr	Asp	Asp	Ser	Gly	Ala	Phe	Gly	Asn	Thr	Arg
450						455					460				
Arg	Ser	Asn	Phe	Val	Gly	Thr	Arg	Lys	Gly	Leu	Asp	Trp	Asp	Asn	Arg
465					470					475			480		
Ser	Tyr	Phe	Thr	Asn	Asp	Gly	Tyr	Glu	Ile	Asp	Pro	Ala	Ser	Gln	Arg
485								490					495		
Asn	Ser	Arg	Tyr	Thr	Leu	Asn	Arg	Pro	Glu	Leu	Ile	Gly	Asn	Glu	Thr
500								505					510		
Arg	Pro	Trp	Asn	Ile	Ser	Leu	Asn	Tyr	Ile	Ile	Lys	Val	Lys	Glu	
515								520					525		

<210> 10  
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 <212> PRT  
 <213> protein p12 of T4 phage

<400> 10

Met	Ser	Asn	Asn	Thr	Tyr	Gln	His	Val	Ser	Asn	Glu	Ser	Arg	Tyr	Val	
1						5			10					15		
Lys	Phe	Asp	Pro	Thr	Asp	Thr	Asn	Phe	Pro	Pro	Glu	Ile	Thr	Asp	Val	
								20		25			30			
His	Ala	Ala	Ile	Ala	Ala	Ile	Ser	Pro	Ala	Gly	Val	Asn	Gly	Val	Pro	
								35		40			45			
Asp	Ala	Ser	Ser	Thr	Thr	Lys	Gly	Ile	Leu	Phe	Ile	Pro	Thr	Glu	Gln	
								50		55			60			
Glu	Val	Ile	Asp	Gly	Thr	Asn	Asn	Thr	Lys	Ala	Val	Thr	Pro	Ala	Thr	
								65		70			75		80	
Leu	Ala	Thr	Arg	Leu	Ser	Tyr	Pro	Asn	Ala	Thr	Glu	Thr	Val	Tyr	Gly	
								85		90			95			
Leu	Thr	Arg	Tyr	Ser	Thr	Asn	Asp	Glu	Ala	Ile	Ala	Gly	Val	Asn	Asn	
								100		105			110			
Glu	Ser	Ser	Ile	Thr	Pro	Ala	Lys	Phe	Thr	Val	Ala	Leu	Asn	Asn	Ala	
								115		120			125			
Phe	Glu	Thr	Arg	Val	Ser	Thr	Glu	Ser	Ser	Asn	Gly	Val	Ile	Lys	Ile	
								130		135			140			
Ser	Ser	Leu	Pro	Gln	Ala	Leu	Ala	Gly	Ala	Asp	Asp	Thr	Thr	Ala	Met	
								145		150			155		160	
Thr	Pro	Leu	Lys	Thr	Gln	Gln	Leu	Ala	Ile	Lys	Leu	Ile	Ala	Gln	Ile	
								165		170			175			
Ala	Pro	Ser	Glu	Thr	Thr	Ala	Thr	Glu	Ser	Asp	Gln	Gly	Val	Val	Gln	

180	185	190	
Leu Ala Thr Val Ala Gln Val Arg Gln Gly Thr Leu Arg Glu Gly Tyr			
195	200	205	
Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Ser Ser Thr Glu Glu Tyr			
210	215	220	
Lys Gly Val Ile Lys Leu Gly Thr Gln Ser Glu Val Asn Ser Asn Asn			
225	230	235	240
Ala Ser Val Ala Val Thr Gly Ala Thr Leu Asn Gly Arg Gly Ser Thr			
245	250	255	
Thr Ser Met Arg Gly Val Val Lys Leu Thr Thr Thr Ala Gly Ser Gln			
260	265	270	
Ser Gly Gly Asp Ala Ser Ser Ala Leu Ala Trp Asn Ala Asp Val Ile			
275	280	285	
Gln Gln Arg Gly Gly Gln Ile Ile Tyr Gly Thr Leu Arg Ile Glu Asp			
290	295	300	
Thr Phe Thr Ile Ala Asn Gly Gly Ala Asn Ile Thr Gly Thr Val Arg			
305	310	315	320
Met Thr Gly Gly Tyr Ile Gln Gly Asn Arg Ile Val Thr Gln Asn Glu			
325	330	335	
Ile Asp Arg Thr Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp			
340	345	350	
Ser Leu Pro Ser Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser			
355	360	365	
Ala Ser Asp Cys Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly			
370	375	380	
Gly Asn Pro Ser Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val			
385	390	395	400
Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly			
405	410	415	
Asn Asp Gln Phe Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly			
420	425	430	
Tyr Val Gly Glu Val Gln Ile Gln Gln Met Ser Tyr His Lys His Ala			
435	440	445	
Gly Gly Phe Gly Glu His Asp Asp Leu Gly Ala Phe Gly Asn Thr Arg			
450	455	460	
Arg Ser Asn Phe Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg			
465	470	475	480
Ser Tyr Phe Thr Asn Asp Gly Tyr Glu Ile Asp Pro Glu Ser Gln Arg			
485	490	495	
Asn Ser Lys Tyr Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr			
500	505	510	
Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu			
515	520	525	

<210> 11  
 <211> 518  
 <212> PRT  
 <213> protein p12 of PP01 phage

<400> 11

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val  
 1 5 10 15

Lys Phe Asp Pro Val Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val  
 20 25 30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro  
 35 40 45

Asp Ala Ser Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln  
 50 55 60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr  
 65 70 75 80

Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly  
 85 90 95

Leu Thr Arg Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn  
 100 105 110

Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val  
 115 120 125

Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile  
 130 135 140

Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met  
 145 150 155 160

Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile  
 165 170 175

Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln  
 180 185 190

Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr  
 210 215 220

Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu  
 225 230 235 240

Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr  
 245 250 255

Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala  
 260 265 270

Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285

Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His

290	295	300	
Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly		Met Trp Lys Asn Gly	
305	310	315	320
Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val			
325	330	335	
Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile			
340	345	350	
Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg			
355	360	365	
Asn Thr Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile			
370	375	380	
Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Gly His			
385	390	395	400
Ile Leu Asn Gln Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly			
405	410	415	
Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Ile			
420	425	430	
Ser Tyr His Lys His Ala Gly Ala Trp Gly Glu Asn Gly Asn Asn Arg			
435	440	445	
Gly Tyr Ala Pro Phe Gly Ala Ser Asn Gly Ser Gly Tyr Leu Gly Asn			
450	455	460	
Gly Arg Ser Ala Asp Trp Asp Asn His Leu Phe Phe Thr Asn Asp Gly			
465	470	475	480
Phe Glu Met Gly Gly Pro Arg Asp Ser Phe Gly Thr Leu Asn Arg Glu			
485	490	495	
Gly Leu Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr			
500	505	510	
Ile Ile Lys Ile His Tyr			
515			

<210> 12  
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 <212> PRT  
 <213> protein p12 of RB69 phage  
  
 <400> 12

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Val Tyr Val			
1	5	10	15
Glu Phe Asp Pro Thr Gly Ser Asn Phe Asp Ser Ser Ile Thr Asn Val			
20	25	30	
Gln Ala Ala Leu Ala Ser Ile Ser Ala Tyr Gly Val Lys Gly Val Pro			
35	40	45	
Asp Ala Ser Glu Ala Glu Lys Gly Val Ile Gln Leu Ala Thr Glu Gln			
50	55	60	

Glu Val Leu Asp Gly Phe Asn Ser Thr Lys Ala Val Thr Pro Ala Thr  
 65 70 75 80

Leu Asn Ala Arg Leu Gln Tyr Pro Asn Ala Ser Glu Thr Gln Tyr Gly  
 85 90 95

Val Thr Lys Tyr Ala Thr Gln Glu Ala Ile Ala Gly Thr Leu Asp  
 100 105 110

Thr Val Ser Ile Thr Pro Leu Lys Leu Asn Gln Thr Ile Asp Asn Thr  
 115 120 125

Phe Ser Thr Arg Tyr Ser Thr Glu Thr Thr Asn Gly Val Ile Lys Ile  
 130 135 140

Ala Thr Gln Thr Ala Ala Leu Ala Gly Ser Asp Asp Thr Thr Ala Met  
 145 150 155 160

Thr Pro Leu Lys Thr Gln Gln Leu Ala Ile Lys Leu Ile Ser Gln Ile  
 165 170 175

Ala Pro Asn Asn Asp Pro Ala Ser Glu Ser Ile Thr Gly Val Val Arg  
 180 185 190

Leu Ala Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr  
 210 215 220

Lys Gly Val Ile Arg Leu Gly Thr Gln Ala Glu Ile Asn Ser Asn Leu  
 225 230 235 240

Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr  
 245 250 255

Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Val Ala  
 260 265 270

Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285

Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His  
 290 295 300

Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly  
 305 310 315 320

Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val  
 325 330 335

Gly Thr Ile Gln Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Val  
 340 345 350

Leu Cys His Gly Gly Thr Ile Ser Gly Asp Gln Phe Pro Asp Tyr Arg  
 355 360 365

Asn Val Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile  
 370 375 380

Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Ser His  
 385 390 395 400

Ile Leu Asn Asn Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly

405	410	415
Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Met		
420	425	430
Ser Tyr His Lys His Ala Gly Gly Trp Gly Glu Phe Gln Arg His Glu		
435	440	445
Ala Pro Phe Gly Ala Ser Val Tyr Gln Gly Tyr Leu Gly Thr Arg Lys		
450	455	460
Tyr Ser Asp Trp Asp Asn Ala Ser Tyr Phe Thr Asn Asp Gly Phe Glu		
465	470	475
Leu Gly Gly His Arg Asp Ala Thr Gly Thr Leu Asn Arg Glu Gly Leu		
485	490	495
Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile		
500	505	510
Lys Val His Tyr		
515		

&lt;210&gt; 13

&lt;211&gt; 516

&lt;212&gt; PRT

&lt;213&gt; protein p12 of AR1 phage

&lt;400&gt; 13

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val		
1	5	10
		15

Lys Phe Asp Pro Thr Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val		
20	25	30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro		
35	40	45

Asp Ala Thr Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln		
50	55	60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr		
65	70	75
		80

Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly		
85	90	95

Leu Thr Arg Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn		
100	105	110

Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val		
115	120	125

Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile		
130	135	140

Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met		
145	150	155
		160

Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile		
165	170	175

Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln  
 180 185 190  
  
 Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205  
  
 Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr  
 210 215 220  
  
 Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu  
 225 230 235 240  
  
 Gly Asp Val Ala Val Thr Gly Gly Thr Leu Asn Gly Arg Gly Ala Thr  
 245 250 255  
  
 Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala  
 260 265 270  
  
 Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285  
  
 Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His  
 290 295 300  
  
 Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly  
 305 310 315 320  
  
 Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val  
 325 330 335  
  
 Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile  
 340 345 350  
  
 Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg  
 355 360 365  
  
 Asn Thr Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile  
 370 375 380  
  
 Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Gly His  
 385 390 395 400  
  
 Ile Leu Asn Gln Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly  
 405 410 415  
  
 Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Met  
 420 425 430  
  
 Ser Tyr His Lys His Ala Gly Gly Trp Gly Glu Tyr Asn Arg Ser Glu  
 435 440 445  
  
 Gly Pro Phe Gly Ala Ser Val Tyr Gln Gly Tyr Leu Gly Thr Arg Lys  
 450 455 460  
  
 Tyr Ser Asp Trp Asp Asn Ala Ser Tyr Phe Thr Asn Asp Gly Phe Glu  
 465 470 475 480  
  
 Leu Gly Gly Pro Arg Asp Ala Leu Gly Thr Leu Asn Arg Glu Gly Leu  
 485 490 495  
  
 Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile  
 500 505 510  
  
 Lys Ile His Tyr

<210> 14  
 <211> 527  
 <212> PRT  
 <213> protein p12 of K3 phage

<400> 14

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Arg Tyr Val  
 1 5 10 15

Lys Phe Asp Pro Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val  
 20 25 30

Gln Ala Ala Ile Ala Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro  
 35 40 45

Asp Ala Ser Ser Thr Thr Lys Gly Ile Leu Phe Leu Ala Thr Glu Gln  
 50 55 60

Glu Val Ile Asp Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr  
 65 70 75 80

Leu Ala Thr Arg Leu Ser Tyr Pro Asn Ala Thr Glu Thr Val Tyr Gly  
 85 90 95

Leu Thr Arg Tyr Ser Thr Asn Asp Glu Ala Ile Ala Gly Val Asn Asn  
 100 105 110

Glu Ser Ser Ile Thr Pro Ala Lys Phe Thr Val Ala Leu Asn Asn Ala  
 115 120 125

Phe Glu Thr Arg Val Ser Thr Glu Ser Ser Asn Gly Val Ile Lys Ile  
 130 135 140

Ser Ser Leu Pro Gln Ala Leu Ala Gly Ala Asp Asp Thr Thr Ala Met  
 145 150 155 160

Thr Pro Leu Lys Thr Gln Gln Leu Ala Ile Lys Leu Ile Ala Gln Ile  
 165 170 175

Ala Pro Ser Glu Thr Thr Ala Thr Glu Ser Asp Gln Gly Val Val Gln  
 180 185 190

Leu Ala Thr Val Ala Gln Val Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Ser Ala Thr Glu Glu Tyr  
 210 215 220

Lys Gly Val Ile Lys Leu Gly Thr Gln Ser Glu Val Asn Ser Asn Asn  
 225 230 235 240

Ala Ser Val Ala Val Thr Gly Ala Thr Leu Asn Gly Arg Gly Ser Thr  
 245 250 255

Thr Ser Met Arg Gly Val Val Arg Leu Thr Thr Thr Ala Gly Ser Gln  
 260 265 270

Ser Gly Gly Asp Ala Ser Ser Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285

His Gln Arg Gly Gly Gln Thr Ile Asn Gly Thr Leu Arg Ile Asn Asn  
 290 295 300

Thr Leu Thr Ile Ala Ser Gly Gly Ala Asn Ile Thr Gly Thr Val Asn  
 305 310 315 320

Met Thr Gly Gly Tyr Ile Gln Gly Lys Arg Val Val Thr Gln Asn Glu  
 325 330 335

Ile Asp Arg Thr Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp  
 340 345 350

Ser Leu Pro Ser Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser  
 355 360 365

Ala Ser Asp Cys Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly  
 370 375 380

Gly Ser Ser Ser Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val  
 385 390 395 400

Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly  
 405 410 415

Asn Asp Gln Phe Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly  
 420 425 430

Tyr Val Gly Glu Val Gln Lys Gln Gln Met Ser Tyr His Lys His Ala  
 435 440 445

Gly Gly Phe Gly Glu Trp Asp Asp Ser Gly Ala Phe Gly Asn Thr Arg  
 450 455 460

Arg Ser Asn Phe Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg  
 465 470 475 480

Ser Tyr Phe Thr Asn Asp Gly Tyr Glu Ile Asp Pro Ala Ser Gln Arg  
 485 490 495

Asn Ser Arg Tyr Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr  
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Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu  
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<210> 15

<211> 516

<212> PRT

<213> protein p12 of RB32-33 phage

<400> 15

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val  
 1 5 10 15

Lys Phe Asp Pro Val Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val  
 20 25 30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro  
 35 40 45

Asp Ala Thr Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln  
 50 55 60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr  
 65 70 75 80

Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly  
 85 90 95

Leu Thr Arg Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn  
 100 105 110

Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val  
 115 120 125

Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile  
 130 135 140

Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met  
 145 150 155 160

Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile  
 165 170 175

Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln  
 180 185 190

Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr  
 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr  
 210 215 220

Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu  
 225 230 235 240

Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr  
 245 250 255

Ser Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala  
 260 265 270

Pro Glu Gly Asp Gly Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile  
 275 280 285

Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His  
 290 295 300

Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly  
 305 310 315 320

Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val  
 325 330 335

Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile  
 340 345 350

Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg  
 355 360 365

Asn Thr Val Gly Ala Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile  
 370 375 380

Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Gly His  
 385 390 395 400

Ile Leu Asn Gln Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly  
405 410 415

Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Met  
420 425 430

Ser Tyr His Lys His Ala Gly Gly Trp Gly Glu Tyr Gln Arg His Glu  
435 440 445

Ala Pro Phe Gly Ala Ser Val Tyr Gln Gly Tyr Leu Gly Thr Arg Lys  
450 455 460

Tyr Ser Asp Trp Asp Asn Ala Ser Tyr Phe Thr Asn Asp Gly Phe Glu  
465 470 475 480

Leu Gly Gly Pro Arg Asp Ala Leu Gly Thr Leu Asn Arg Glu Gly Leu  
485 490 495

Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile  
500 505 510

Lys Ile His Tyr  
515